Refuge: Nisqually NWR Complex

Title: Tidal Range Monitoring and Analysis for Estuary Restoration Projects

Project Description: Nisqually NWR recently restored 762 acres of the Nisqually estuary. This is the largest estuary restoration project in the Pacific Northwest and it is considered an important step in the recovery of Puget Sound. Pre and post restoration monitoring are critical components of any estuary restoration project, to assess project outcomes, evaluate whether objectives are being achieved, to support adaptive management decisions, and investigate the implications of climate change and sea level rise in relation to major estuary restoration projects.

A cooperative science team has been established at Nisqually NWR to support monitoring efforts. Information on this effort can be found at the partner website nisquallydeltarestoration.org. Monitoring of this large estuary restoration project is crucial not only to support the Nisqually restoration project, but also to provide needed information on estuary restoration science for practitioners, including major projects ongoing or planned on other Refuges. Monitoring and methods developed at Nisqually NWR can provide a model or template for other restoration sites. Informal coordination is already ongoing with several other restoration projects both within and outside Puget Sound.

Few natural resource areas have continuous datasets encompassing existing tidal ranges within their properties. In some cases, Refuge sites may have data that has either not been analyzed or lacks consistency in data collection methods or analysis among sites conducting or planning estuary restoration projects. We propose to use Nisqually NWR data to develop capacity to provide standardized, continuous tidal level data with water level loggers (Solinst), barologgers, and a broadband modem to provide real-time data. These data would be developed into a simple database to allow for easy analysis and presentation on webpages. These methods would help to guide long term monitoring needs at Nisqually NWR and could be adopted at other Refuge or natural resource restoration sites throughout the Northern Pacific LCC. Sustained long term monitoring conducted in a standardized approach across multiple locations could be used as an additional tool in assessing climate change and sea level rise effects.

Partnerships: The science partnership includes USGS, the Nisqually Indian Tribe, and Nisqually NWR. This project would be led by the USGS Western Ecological Research Center assisted by project partners.

Cost Estimate: Estimated cost of $20K for USGS for labor, equipment, and development of a simple database. Interagency agreement is in place and could be modified or a separate agreement developed.